

FORM PTO-1390  
(REV 10-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

60,130-925

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

Herein

09/674870

INTERNATIONAL APPLICATION NO.  
PCT/GB99/01411INTERNATIONAL FILING DATE  
6, May 1999PRIORITY DATE CLAIMED  
6, May 1998

TITLE OF INVENTION Latch Mechanism

APPLICANT(S) FOR DO/EO/US Kalsi, Gurbinder Singh

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)).
4. ☐ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☒ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11 to 16 below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information: **CERTIFICATE OF EXPRESS MAIL**

I hereby certify that the enclosed Documents are being deposited with the United States Postal Service as Express Mail, postage prepaid, in an envelope as "Express Mail Post Office to Addressee," mailing label No. EL668870885US and addressed to Box PCT, Assistant Commissioner of Patents and Trademarks, Washington D.C. 20231 on this 6th day of November, 2000.

EL668870885US

  
 Stefanie R. Hernandez

Herewith

09/674870

17. ☒ The following fees are submitted:**BASIC NATIONAL FEE** (37 CFR 1.492 (a) (1) - (5)) :Neither international preliminary examination fee (37 CFR 1.482)  
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO  
and International Search Report not prepared by the EPO or JPO ..... **\$1000.00**International preliminary examination fee (37 CFR 1.482) not paid to  
USPTO but International Search Report prepared by the EPO or JPO ..... **\$860.00**International preliminary examination fee (37 CFR 1.482) not paid to USPTO but  
international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... **\$710.00**International preliminary examination fee paid to USPTO (37 CFR 1.482)  
but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... **\$690.00**International preliminary examination fee paid to USPTO (37 CFR 1.482)  
and all claims satisfied provisions of PCT Article 33(1)-(4) ..... **\$100.00****ENTER APPROPRIATE BASIC FEE AMOUNT** =

CALCULATIONS

PTO USE ONLY

\$ 860.00

Surcharge of **\$130.00** for furnishing the oath or declaration later than ☐ 20 ☒ 30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

\$ 130.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	28 - 20 =	8	X \$18.00	\$ 144.00	
Independent claims	4 - 3 =	1	X \$80.00	\$ 80.00	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$ 0.00	

**TOTAL OF ABOVE CALCULATIONS** =

\$ 1,214.00

☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above  
are reduced by 1/2.

\$

**SUBTOTAL** =

\$ 1,214.00

Processing fee of **\$130.00** for furnishing the English translation later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(f)).

\$

**TOTAL NATIONAL FEE** =

\$ 1,214.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **\$40.00** per property

\$

**TOTAL FEES ENCLOSED** =

\$ 1,214.00

Amount to be refunded:	\$
charged:	\$

- a. ☒ A check in the amount of \$ 1,214.00 to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. 50-1482 in the amount of \$\_\_\_\_\_ to cover the above fees.  
A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
overpayment to Deposit Account No. 50-1482. A duplicate copy of this sheet is enclosed.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

SIGNATURE

Anthony P. Cho

NAME

47,209

REGISTRATION NUMBER

09/674870

**PATENT COOPERATION TREATY**

529 Rec'd PCT/PTC 06 NOV 2000

In re application of: Kalsi, Gurbinder Singh

Serial No.: Herewith

Filed: Herewith

For: LATCH MECHANISM

Attorney Docket No: 60,130-925

**PRELIMINARY AMENDMENT**

Dear Sir:

Please make the following preliminary amendment to the application:

At page 1, below title "**LATCH MECHANISM**", please insert the following --  
"This application claims priority to PCT application, PCT/GB99/01411, filed 6 May 1999, which itself claims priority to British application, GB 9809640.7, filed 6 May 1998."

**BACKGROUND OF THE INVENTION** --

At page 1, after line 26 but before line 27, please insert the following title --

**SUMMARY OF THE INVENTION** --

At page 1, at line 27, please delete "Thus" and change "according" to "According".

At page 2, before line 23, please insert the following title -- **BRIEF DESCRIPTION OF DRAWINGS** --

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At page 3, after line 5 but before line 6, please insert the following title --

**DETAILED DESCRIPTION OF PREFERRED EMBODIMENT** --

At page 3, at line 21 please insert before "Inside lock link 21" -- Viewing Fig. 1A, -- and change "Inside" to "inside".

At page 4, at line 3, please insert before "Outside release lever 40" -- Referring to Fig. 1, -- and change "Outside" to "outside".

At page 4, at line 8, please insert before "In particular" -- Referring to Figs. 1 and 1A, -- and change "In" to "in".

At page 4, at line 13, please change "Fig. 1b" to "Fig. 1B".

At page 4, at line 20, please insert after "cam 30"-- (see fig. 1A) --

At page 4, at line 22, please change "Fig. 1b" to "Fig. 1B".

At page 5, at line 3, please insert after "abutment 42" -- (see Fig. 1) --

At page 4, at line 4, please insert after "abutment 22c" -- (see Fig. 1A) --

At page 5, at line 7, please insert after "pawl lifter 20" -- (see Fig. 1) --

At page 5, at line 11, please insert after "latch mechanism 10 -- (see Fig. 3) --

At page 5, at line 12, please insert after "cam 30" -- (see Fig. 3) --

At page 5, at line 16, please insert after "cam 30" -- (see Fig. 3) --

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At page 5, at line 16, please insert after "21b" -- (see Fig. 1A) --

At page 5, at line 18, please insert after "abutment 45" -- (see Fig. 1B) --

At page 5, at line 19, please insert after "release lever 43" -- (see Fig. 2) --

At page 5, at line 19, please insert before "This" -- "Referring to Fig. 1A," -- and change "This" to "this".

At page 5, at line 22, please insert after "inside release lever 43" -- (see Fig. 1B) --

At page 5, at line 23, please insert after "abutment 46" -- (see Fig. 1B) --

At page 5, at line 23, please insert after "contact lever 35" -- (see Fig. 1A) --

At page 5, at line 23, please insert after "cam 30" -- (see Fig. 1A) --

At page 5, at line 27, please insert after "latch mechanism 10" -- (see Fig. 5)--

### IN THE CLAIMS

3. (Amended). A latch mechanism as defined in claim 1 [or 2] in which a pawl lifter is connected to a pawl and the at least one lock link is mounted on the pawl lifter.
4. (Amended). A latch mechanism as defined in [any preceding] claim 1 in which the at least one lock link is pivotally mounted for rotational movement between its first and second positions.
5. (Amended). A latch mechanism as defined in [any preceding] claim 1 in which the inside and outside lock link are both mounted for movement with the pawl.
6. (Amended). A latch mechanism as defined in [any preceding] claim 1 in which indexing of a cam effects movement of the at least one lock link between its first and second positions.

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8. (Amended). A latch mechanism as defined in claim 7 [when dependent upon claim 2] in which the cam is rotationally mounted co-axially with the pawl.

9. (Amended). A latch mechanism as defined in [any one of] claim[s] 6 [to 8] in which the cam includes at least 2 cam lobes which position the at least one lock link in one of the first and second positions, with the at least 2 cam lobes being separated by a cam valley which positions the at least one lock link in the other of the first and second positions.

10. (Amended). A latch mechanism as defined in [any one of] claim[s] 6 [to 9] in which indexing of the cam effects movement of both the inside and outside lock links.

11. (Amended). A latch mechanism as defined in [any one of] claim[s] 6[to 10] in which the cam has a plurality of lobes.

12. (Amended). A latch mechanism as defined in [any one of] claim[s] 6 [to 11] in which the release means is capable of indexing the cam to move at least one of the lock links between the first and second positions.

14. (Amended). A latch mechanism as defined in [any preceding] claim 1 in which movement of the at least one lock link between its first and second position is effected by a power actuator.

15. (Amended). A latch mechanism as defined in [any preceding] claim 1 in which the pawl is capable of being moved to release the latch by a power actuator.

16. (Amended). A latch mechanism as defined in claim 15 [when dependent upon claim 14] in which the power actuator which indexes the cam is the same power actuator which moves the pawl.

18. (Amended). A latch mechanism as defined in [any preceding] claim 1 having a set of operating modes, each mode having alternate states, the set including at least one of a lock mode and a super lock mode, and at least one of a child safety mode and a release mode, changing of the latch mechanism between alternate states of each of the at least two modes of the set being effected by a single power actuator.

20. (Amended). A latch mechanism as defined in claim 18 [or 19] in which the set includes at least one of the lock mode and super lock mode and both of the child safety mode and the release mode.

21. (Amended). A latch mechanism as defined in [any preceding] claim 1 having a set of operating modes, each mode having alternate states, the set including a child safety mode and a release mode, changing of the latch mechanism between alternate states of each of the modes being effected by a single power actuator.

22. (New). A latch mechanism having a set of operating modes, each mode having alternate states, the set including at least one of a lock mode and a super lock mode, and at least one of a child safety mode and a release mode, changing of the latch mechanism between alternate states of each of the at least two modes of the set being effected by a single power actuator.

23. (New). A latch mechanism as defined in claim 22 in which the set includes the lock mode and the super lock mode and at least one of the child safety mode and release mode.

24. (New). A latch mechanism as defined in claim 22 in which the set includes at least one of the lock mode and super lock mode and both the child safety mode and the release mode.

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26. (New). A vehicle body including a first and second door, each door including respective first and second latch mechanisms as defined in claim 1, each mechanism being operable by respective first and second power actuators to give respective first and second sets of operating modes, each mode having alternate states, and control of the power actuators being different to provide for different first and second sets of operating modes.

27. (New). A vehicle body as defined in claim 26 in which the first and second latch mechanisms are substantially the same.

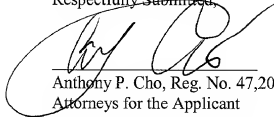
28. (New). A vehicle including a first and second door, each door including respective first and second latch mechanisms, the first and second latch mechanisms being substantially the same, and being operable by respective first and second power actuators to give respective first and second sets of operating modes, each mode having alternate states, control of the power actuators being different to provide for different first and second sets of operating modes.



**REMARKS**

By this Preliminary Amendment multiple dependencies have been removed.  
Applicant respectfully requests examination of this application.

Respectfully Submitted,



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Dated: 6, November 2000

**CERTIFICATE OF MAILING**

I hereby certify that the attached Amendment and Fee are being deposited with the United States Postal Service as Express mail, postage prepaid, in an envelope addressed to Box PCT, Assistant Commissioner of Patents, Washington, D.C. 20231, on November 6, 2000.



Stefanie R. Hernandez

7/PATS

09/674870

Attorney Docket 60,130-925

529 Rec'd PCT/PTC 06 NOV 2000

LATCH MECHANISM

The present invention relates to latch mechanisms for doors of vehicles. The invention further relates to vehicles including at least 2 doors, each door  
5 incorporating a latch mechanism.

It is known to provide latch mechanisms on doors of vehicles to allow opening and closing of the door. Such latch mechanisms have various modes or operation eg

- a) Lock mode, wherein operation of an outside door handle does not  
10 open the latch mechanism
- b) Superlocked mode, when in operation of an outside or an inside release lever does not operate the latch mechanism.
- c) Child safety mode, wherein operation of an inside release lever does not operate the latch mechanism.
- 15 d) Release mode, wherein the latch mechanism is released via means other than operation of the inside or outside release levers.

Each mode has alternate states eg locked/unlocked, superlocked/not superlocked, child safety o/off and release/not released.

20 Typically each mode requires an individual mechanism to effect the alternative states, with operation of each mechanism being affected either manually or with an individual power actuator.

In the case of a latch mechanism operated entirely by power actuators, such as DC motors, it is also necessary to be able to open a locked door which has the  
25 child safety feature on in an emergency situation when actuation of the power actuators is not possible, such as when the keys to the vehicle are not available.

Thus according to the present invention there is provided a latch mechanism including a housing, a pawl movably mounted in the housing to release the latch, with at least one of an inside and outside lock link mounted for movement with the  
30 pawl with the at least one lock link being movable between a first position at which operation of an associated release means causes movement of the pawl to release the

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latch, and a second position at which the operation of the associated release means does not cause movement of the pawl.

Preferably movement of the at least on lock link between its first and second position is effected by a power actuator.

5 According to a further aspect of the invention there is also provided a latch mechanism having a set of operating modes, each mode having alternate states, the set including at least one of a lock mode and, a super lock mode, and at least one of a child safety mode and a release mode, changing of the latch mechanism between alternate states of each of the at least two modes of the set being effected by a single  
10 power actuator.

According to a further aspect of the invention there is provided a latch mechanism having a set of operating modes, each mode having alternate states, the set including a child safety mode and a release mode, changing of the latch mechanism between alternate states of each of the modes being effected by a single  
15 power actuator.

According to a further aspect of the invention there is provided a vehicle including a first and second door, each door including respective first and second latch mechanisms, the first and second latch mechanisms being substantially the same, and being operable by respective first and second power actuators to give  
20 respective first and second sets of operating modes each mode having alternate states, control of the power actuators being different to provide for different first and second sets of operating modes.

The invention will now be described by way of example only with reference to the accompanying drawings in which;

25 Fig.1 is a latch mechanism according to the present invention in a super-locked condition;

Fig.1a is an enlarged view of part of Fig.1;

Fig.1b is a schematic view in the direction of arrow A of Fig.1;

Fig.2 is the latch mechanism of Fig.1 in a locked position with child safety  
30 on;

Fig.3 is the latch mechanism of Fig.1 in an unlocked condition with the child safety on;

Fig.4 is the latch mechanism of Fig.1 in a locked condition with the child safety off;

Fig.5 is the latch mechanism of Fig.1 in an unlocked position with the child safety off; and

5 Fig.6 is a latch mechanism of Fig.1 in a release position.

With reference to Figs 1-6 there is shown a latch mechanism 10 including a body 11 which supports various components of the latch mechanism 10 as indicated below.

Latch mechanism 10 further includes a claw 12 pivotally mounted about axis 10 13 on the body 11. Claw 12 acts to secure an associated door (not shown) in a closed position via a striker pin 14 attached to the door aperture. Rotation of the claw 12 in an anticlockwise direction about axis 13 when viewing Fig.1 allows release of the striker pin 14, thus enabling opening of the associated door.

The claw 12 is held in a closed position by a pawl 15, only part of which is 15 shown in dotted profile in Fig.1 for clarity. Pawl 15 is pivotally mounted on body 11 and can rotate about axis 16. Claw 12 can be held in a first safety position (not shown) when pawl 15 engages first safety abutment 17.

Pawl lifter 20 is generally flat and lies in a plane parallel to pawl 15, to which it is rotationally secured. When viewing Fig.1 pawl 15 is obscured by pawl 20 lifter 20. Clearly, pawl lifter 20 also rotates about axis 16. 20

Inside lock link 21 and outside lock link 22 are mounted for movement with the pawl, in this case they are each individually pivoted about respective axes 21a and 22a on pawl lifter 20. In this case inside lock link 21 and outside lock link 22 are identical and each have respective cam followers 21b and 22b and release 25 abutments 21c and 22c. Inside lock link 21 and outside lock link 22 are each biased in a clockwise direction when viewing Fig.1 such that the respective cam followers 21b and 22b contact cam 30.

Cam 30 is capable of rotating independently from pawl lifter 20 about axis 16. Cam 30 has three lobes 31, 32 and 33 and two levers 34 and 35 shown 30 diagrammatically for clarity. Lobes 31, 32, 33 and levers 34 and 35 are all rotationally fast with cam 30. Preferably cam 30 can at least be rotated to the

various positions as described below by a power actuator (not shown) such as a DC motor or preferably a stepper motor.

Outside release lever 40 is pivotally mounted about axis 41. Inside release lever 43 (shown diagrammatically in Fig.1b) is pivotally mounted about axis 44.

5        Operation of a door latch mechanism is as follows.

Fig.1 shows the door latch mechanism in a super lock condition, that is to say operation of the outside release lever 40 or inside release lever 43 does not allow unlatching of the mechanism. In particular it can be seen that if outside release lever 40 were to be operated by being rotated in a clockwise direction about axis 41, abutment 42 would pass release abutment 22c of outside lock link 22 without contact (note that outside release lever 40 is in the same plane as outside lock link 22). Similarly inside release lever 43 when operated by being rotated in an anticlockwise direction about axis 44 when viewing Fig.1b, would cause abutment 45 to pass release abutment 21c of inside lock link 21 (see especially Fig.1).

15        Fig.2 shows the door latch mechanism 10 in a locked position with the child safety feature on. It will be noted that cam 30 has been rotated 30 degrees in an anticlockwise direction when compared to Fig.1. However, the inside lock link 21 and outside lock link 22 are in the same position when compared with Fig.1 since neither of the cam followers 21b or 22b have, at this stage, ridden up any of the lobes 31, 32 or 33 of the cam 30. However, lever 34 has been rotated to a position whereby operation of the inside release lever 43 in an anticlockwise direction when viewing Fig.1b would cause abutment 46 to contact lever 34 and rotate cam 30 to the position shown in Fig.3. Note this initial operation of inside release lever 43 does not unlatch the mechanism but only operates to unlock the door (see below).

20        This method of being able to override and open a locked door which has the child safety on is especially important in an emergency situation whereby a passer-by can effect access to the inside door handle (eg by breaking the door window glass), operate the inside door handle to unlock the door, then operate the outside door handle to open the door and then remove the child from the car.

30        Fig.3 shows the door latch mechanism 10 in an unlocked condition with the child safety feature on. In this case the cam 30 has been rotated sufficiently (either by operating the inside release lever when the cam was in the position shown in

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Fig.2 or by independent rotation of the cam directly eg by a power actuator) such that cam follower 22b has ridden up cam lobe 32 resulting in anticlockwise rotation of outside lock link 22. Thus when outside release lever 40 is operated, abutment 42 contacts release abutment 22c causing the pawl lifter 20 as a whole to rotate anticlockwise when viewing Fig.3 and releasing the pawl 15 and allowing the claw 12 to open. Stop 22d limits the anticlockwise rotation of outside lock link 22. Upon release of the outside release lever 40 the pawl lifter 20 is biased back to the position as shown in Fig.3 by a spring (not shown). It should also be noted that the inside lock link 21 is in the same position as that shown in Fig.1, thus operation of the inside release lever 43 does not allow opening of the door.

Fig.4 shows the door latch mechanism 10 in a locked condition with the child safety feature off. It should be noted that the cam 30 has been rotated 90 degrees in an anticlockwise direction when compared with Fig.1. This results in cam follower 22b being situated between cam lobes 32 and 33 thus ensuring that operation of outside release lever 40 does not release the latch mechanism. Furthermore, the rotation of the cam 30 has caused cam follower 21b to ride up cam lobe 31 causing inside lock link 21 to rotate anticlockwise about axis 21a. Thus abutment 21c of inside lock link 21 is contacted by abutment 45 of inside release lever 43 when it is operated. This causes anticlockwise rotation of the pawl lifter 20 about axis 16 resulting in unlatching of the door mechanism and allowing the door to be subsequently opened. Stop 21d limits the anticlockwise rotation of inside lock link 21. It should be noted that the operation of the inside release lever 43 also causes abutment 46 to contact lever 35 causing rotation of cam 30 to the position shown in Fig.5. This prevents a vehicle occupant inadvertently locking himself out of the vehicle since opening of the door from the inside automatically unlocks the door, allowing subsequent opening from the outside.

Fig.5 shows the door latch mechanism 10 in an unlocked position with the child safety feature off. It can be seen that the cam has been rotated (either by operating the inside release lever when the cam was in the position shown in Fig.4 or by independent rotation of the cam directly eg by a power actuator) such that abutment 22b now rests on lobe 33 allowing operation of the outside release lever 40 to unlatch the latch mechanism as described above. Furthermore abutment 21b

remains in contact with lobe 31 thus ensuring that operation of the inside release lever also unlatches the door mechanism.

Fig.6 shows the door latch mechanism 10 in a released position. This is achieved by rotation of cam 30 in an anticlockwise direction which allows contact  
 5 between corresponding lost motion abutments (not shown) on the pawl lifter 20 and cam 30. Such lost motion abutments allow the cam 30 to rotate the pawl lifter 20 to release the door latch mechanism independently of the operation of the outside release lever 40 or the inside release lever 43.

Note that only a single cam is required to effect the various modes of  
 10 operation.

In further embodiments the inside and outside lock links can be mounted directly on the pawl.

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# CLAIMS

1. A latch mechanism including a housing, a pawl movably mounted in the housing to release the latch, with at least one of an inside and outside lock link  
5 mounted for movement with the pawl with the at least one lock link being movable between a first position at which operation of an associated release means causes movement of the pawl to release the latch, and a second position at which operation of the associated release means does not cause movement of the pawl.
- 10 2. A latch mechanism as defined in claim 1 in which the pawl is rotatably mounted in the housing.
3. A latch mechanism as defined in claim 1 or 2 in which a pawl lifter is connected to a pawl and the at least one lock link is mounted on the pawl lifter.  
15
4. A latch mechanism as defined in any preceding claim in which the at least one lock link is pivotally mounted for rotational movement between its first and second positions.
- 20 5. A latch mechanism as defined in any preceding claim in which the inside and outside lock link are both mounted for movement with the pawl.
6. A latch mechanism as defined in any preceding claim in which indexing of a cam effects movement of the at least one lock link between its first and second  
25 positions.
7. A latch mechanism as defined in claim 6 in which the cam is rotationally mounted for indexing.
- 30 8. A latch mechanism as defined in claim 7 when dependent upon claim 2 in which the cam is rotationally mounted co-axially with the pawl.



9. A latch mechanism as defined in any one of claims 6 to 8 in which the cam includes at least 2 cam lobes which position the at least one lock link in one of the first and second positions, with the at least 2 cam lobes being separated by a cam valley which positions the at least one lock link in the other of the first and second positions.

10. A latch mechanism as defined in any one of claims 6 to 9 in which indexing of the cam effects movement of both the inside and outside lock links.

11. A latch mechanism as defined in any one of claims 6 to 10 in which the cam has a plurality of lobes.

12. A latch mechanism as defined in any one of claims 6 to 11 in which the release means is capable of indexing the cam to move at least one of the lock links between the first and second positions.

13. A latch mechanism as defined in claim 12 in which the release means is capable of indexing the cam to move at least one of the lock links from its second position to its first position.

14. A latch mechanism as defined in any preceding claim in which movement of the at least one lock link between its first and second position is effected by a power actuator

15. A latch mechanism as defined in any preceding claim in which the pawl is capable of being moved to release the latch by a power actuator.

16. A latch mechanism as defined in claim 15 when dependent upon claim 14 in which the power actuator which indexes the cam is the same power actuator which moves the pawl.

17. A latch mechanism as defined in claim 16 in which the power actuator drives the cam such that an abutment on the cam operatively co-acts with an abutment fast with the pawl to release the latch mechanism.
- 5 18. A latch mechanism as defined in any preceding claim having a set of operating modes, each mode having alternated states, the set including at least one of a lock mode and a super lock mode, and at least one of a child safety mode and a release mode, changing of the latch mechanism between alternate states of each of the at least two modes of the set being effected by a single power actuator.
- 10 19. A latch mechanism as defined in claim 18 in which the set includes the lock mode and the super lock mode and at least one of the child safety mode and release mode.
- 15 20. A latch mechanism as defined in claim 18 or 19 in which the set includes at least one of the lock mode and super lock mode and both of the child safety mode and the release mode.
- 20 21. A latch mechanism as defined in any preceding claim having a set of operating modes, each mode having alternate states, the set including a child safety mode and a release mode, changing of the latch mechanism between alternate states of each of the modes being effected by a single power actuator.
- 25 22. A latch mechanism having a set of operating modes, each mode having alternate states, the set including at least one of a lock mode and a super lock mode, and at least one of a child safety mode and a release mode, changing of the latch mechanism between alternate states of each of the at least two modes of the set being effected by a single power actuator.
- 30 23. A latch mechanism as defined claim 22 in which the set includes the lock mode and the super lock mode and at least one of the child safety mode and release mode.

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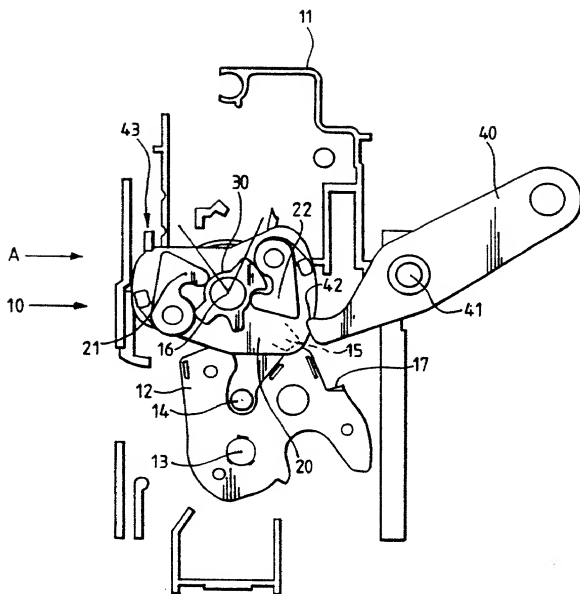
25

**ABSTRACT**

A door latch mechanism 10 including a housing, a pawl 15 moveably  
 mounted in the housing to release the latch, a pawl lifter 20 connected to the pawl  
 5 with an inside lock link 21 and an outside lock link 22 mounted on the pawl lifter  
 with the lock links being moveably between a respective first position at which  
 operation of an associated door handle causes movement of the pawl to release the  
 latch and a second position at which operation of the associated door handle does  
 not cause movement of the pawl. Preferably movement of the lock links is effected  
 10 by a power actuator (figure 1).

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SUPER LOCKED

FIG.1.

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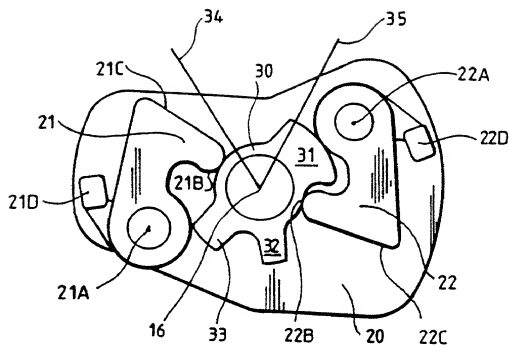


FIG. 1A.

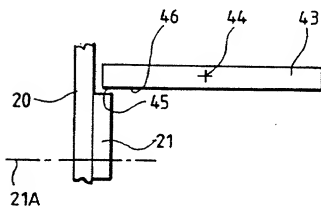
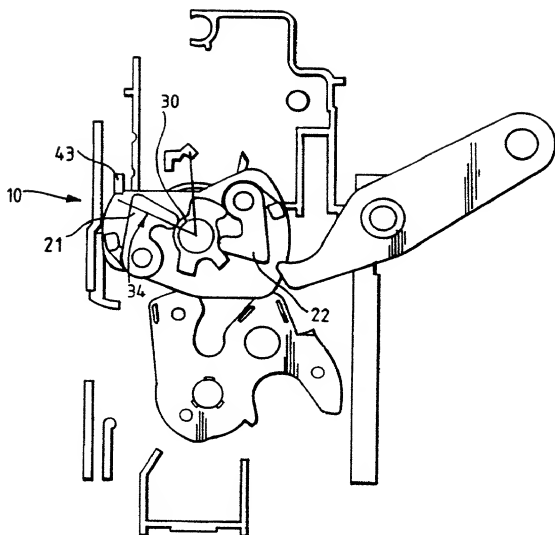


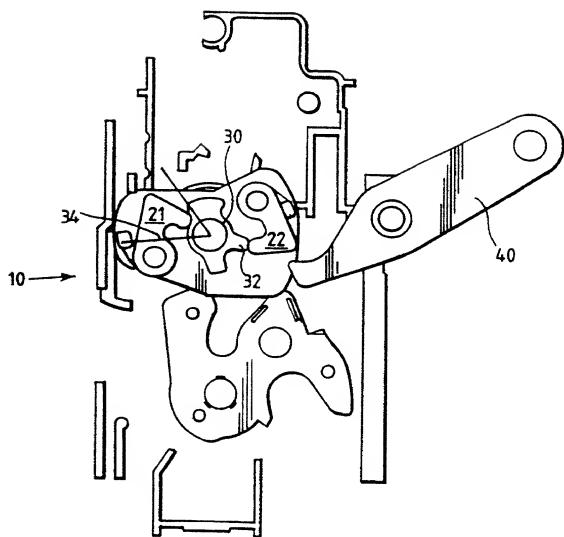
FIG. 1B.

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LOCKED—CHILD SAFETY ON

FIG.2.

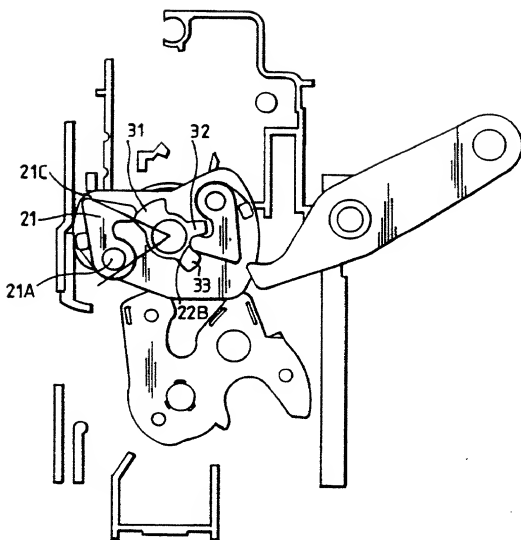


UNLOCKED — CHILD SAFETY ON

FIG. 3.



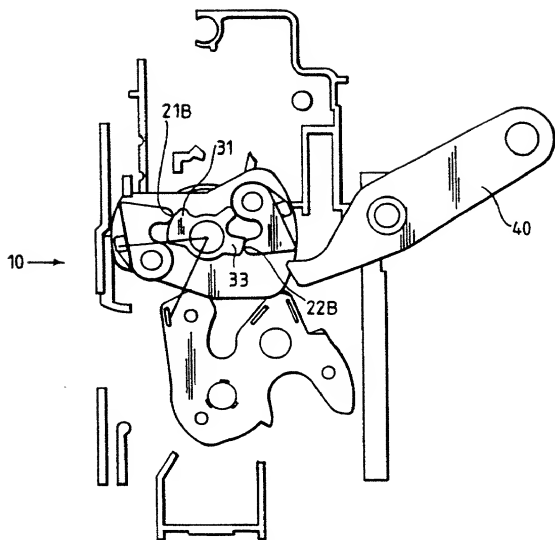
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LOCKED CHILD SAFETY OFF

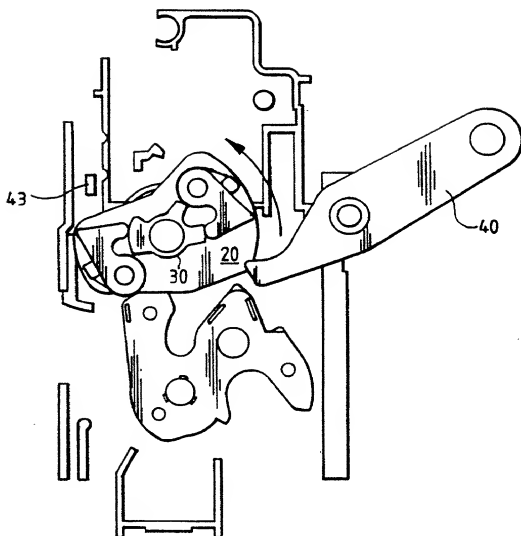
FIG.4.

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UNLOCKED CHILD SAFETY OFF

FIG.5.



RELEASE

FIG. 6.

**COMBINED DECLARATION AND POWER OF ATTORNEY  
(Sole Inventor; Priority Claimed)**

As the below named inventor, I hereby declare: that my residence, post office address and citizenship are as stated near my name below; that I believe I am the original, first and sole inventor of the subject matter of which is claimed and for which a patent is sought on the invention entitled

**LATCH MECHANISM**

which is described and claimed in the specification of which was filed on November 6, 2000; attorney docket number 60,130-925 and that this application was filed on May 6, 1999 as International Application (PCT) No. PCT GB99/01411 which claims priority to British Application No.: GB9809640.7 filed May 6, 1998.

I have reviewed and understand the contents of this specification, including the claims, as amended by any amendment referred to above; that I do not know and do not believe the same was ever known or used in the United States of America before my invention thereof or patented or described in any printed publication, in any country before my invention thereof for more than one year prior to this application, or in public use or on sale in the United States of America more than one year prior to this application; that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve (12) months prior to this application; that I acknowledge my duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a); and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns except as follows:

I hereby claim the benefit under 35 U.S.C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112. I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C.F.R., Section 1.58 which became available between the filing date of the prior application and the national or PCT International filing date application:

APPLICATION NUMBER	DATE OF FILING	STATUS
PCT GB 99/01411	May 6, 1999	Pending

We hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of the foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application(s) for patent or inventor's certificate filed on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

Such applications have been filed as follows:

COUNTRY	APPLICATION NUMBER	DATE OF FILING (month, day, year)	PRIORITY CLAIMED UNDER 37 USC 119
United Kingdom	9809640.7	May 6, 1998	Yes <u>X</u> No <u>  </u>

We hereby appoint M. Lee Murrah, Registration No. 27,460; Theodore W. Olds, Registration No. 33,080; Scott M. Confer, Registration No. 40,568; John E. Carlson, Registration No. 37,794; David J. Gaskey, Registration No. 37,139; Kerrie A. Laba, Registration No. 42,777; William Gottschalk, Registration No. 44,130; David Wisz, Registration No. 46,350; Karin H. Butchko, Registration No. 45,864; John M. Siragusa, Registration No. 46,174; and Anthony P. Cho, Registration No. 47,209 as our attorneys to prosecute this application and to transact all business in the Patent and Trademark Office and any foreign patent office connected herewith. Please address all correspondence and telephone calls to:

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